



**US Army Corps
of Engineers®**

Engineer Research and
Development Center

Product

RAILER® Engineered Management System

Technology

The RAILER® Engineered Management System (EMS), is a software system developed by the Construction Engineering Research Laboratory (CERL), to help civil engineers, technicians, and managers evaluate track and plan effective, economical railroad track maintenance and repair (M&R) programs. RAILER provides track managers with a computerized database and analysis procedures for storing data on railroad track inventory, inspection results, track conditions, M&R costs and policies, work history, and other essential items. Periodic track inspections form the basis for the track management process. These can be quick “safety” inspections or less frequent “detailed” inspections.

RAILER can be used for both network-level and project-level management. Network-level management activities include assessing current overall track network condition and trends, developing M&R strategies, budgeting, developing short- and long-range M&R plans, and justifying budgets and M&R projects. These tasks involve the use of track standards and the Track Structure Condition Index (TSCI). Project-level management activities include the detailed analysis of specific track segments that may be needed for problem diagnosis. Linkage to the CERL-developed TRACK program enhances this analysis. The RAILER system can incorporate the results of commercially available internal rail flaw detection and automated track geometry surveys. Also, the efficiency of data logging and transcription can be improved further using the RAILER RED add-on software application for pen-based electronic clipboards. RAILER data and analysis results can also be viewed in the ArcView Geographic Information System (GIS). Many views and themes have been developed. RAILER GIS was developed as an interface program between RAILER databases and ArcView.

Problem

The Army owns and maintains about 2500 miles of railroad track, much of which is strategically important for movement of troops and materiel. Much of this track is several decades old and has not been adequately maintained or repaired over the years. Due to budget constraints much of the Army’s railroad network is deteriorating faster than M&R funds become available. Inadequate track maintenance jeopardizes the Army’s ability to mobilize. Economical, effective track management procedures are needed to ensure continued military readiness.



Expected Cost To Implement

Implementation consists of the creation of the RAILER database. This involves the collection of track inventory and inspection data, the gathering of unit cost information and the creation of M&R policies. Optionally, training and GIS coverage development may be desired. Although costs are site and network specific, a planning figure of \$2500 per track mile may be used. Future costs are basically limited to those costs associated with track inspection and thus, little or no costs directly

associated with RAILER are required. Technical assistance is available by subscription to the Technical Assistance Center at a subscription (and annual renewal) fee of \$950.

Benefits/Savings

Once identified and analyzed through RAILER., the best M&R strategy can be budgeted and executed in a prioritized and timely manner, making the best use of track M&R resources. RAILER enables managers to plan M&R work for specific track areas before unacceptable deterioration occurs. This practice ensures that track is maintained at a level consistent with operating needs and sufficient to prevent catastrophic failures and accidents. RAILER also provides a systematic, documented engineering basis for determining short- and long-term needs and priorities. These benefits translate to: (1) protecting the defense mobilization or revenue generating ability, (2) avoiding costs for restricted operations, major repairs due to neglected M&R, and damaged cargo and equipment, and (3) improved life safety.

Status

RAILER version 5.2 is available for immediate implementation on Windows® 98, Windows® NT, and Windows® 2000 systems. It incorporates inventory, safety inspection, detailed inspection, cost estimation, condition indexes, condition comparison against different track standards, manual track geometry features, work history, and a wide variety of reports. RAILER 5.2 improves the development of multi-year work plans and projects for track networks. Version 5.3 is under development and will include minor enhancements and improvements over Version 5.2.

ERDC POC

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Distribution Source

Users can download the RAILER program and updates from:

Technical Assistance Center
Suite 202, University Centre
302 E. John St.

Champaign, IL 61820

Phone: (217)333-5414

URL: <http://www.tac.uiuc.edu/software/railer/>

Available Training

Classroom training may be scheduled through the ERDC POC for this product.